RILEY PURGATORY BLUFF CREEK WATERSHED DISTRICT

2024 Update

Lake Lucy

Lake Lucy is the headwaters to Riley Creek. Water flows out of Lucy to Lake Ann and then to Riley Creek. On its way south to the Minnesota River, Riley Creek passes through Susan, Rice Marsh, and Riley lakes.

From June to September every year, District staff visit the lake every two weeks to collect water samples and take readings. Samples are sent to a laboratory to be tested for nutrients and other compounds. Staff also measure water clarity by lowering a Secchi disk into the water and measuring how deep it goes before it is no longer visible. The data indicates the lake's health based on standards set by the Minnesota Pollution Control Agency (MPCA).

Lake Lucy is classified as a "Shallow Lake" by the MPCA. To be considered healthy, the lake must meet standards set for shallow lakes. This includes low average phosphorus and chlorophyll-a levels and average water clarity of 1.0 meter (3.3 feet) or greater.

Lake Lucy Water Quality Snapshot

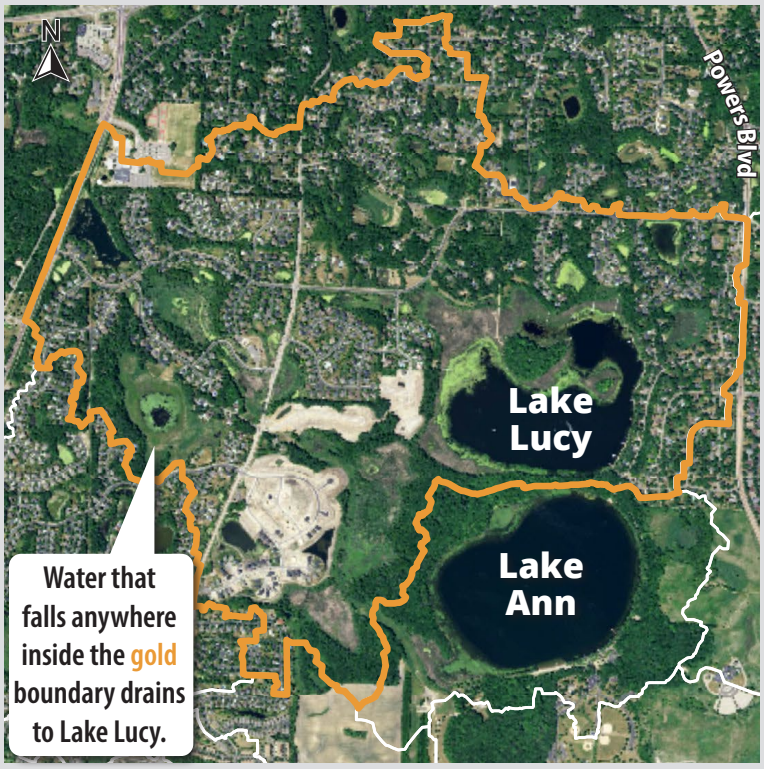
Parameter	Shallow lake standard	2024 average	Note
Total Phosphorus	Less than 0.06 mg/L	0.063 mg/L	The average total phosphorus level jumped in 2024, and Lake Lucy did not meet the standard.
Chlorophyll-a	Less than 20 µg/L	43.2 µg/L	After a few years of declining levels, chlorophyll-a returned to the level seen in 2015. This may be due to 2024 precipitation patterns which included a wet spring and early summer followed by a late summer drought, providing perfect conditions for algae growth.
Water Clarity	Greater than 1.0 meters	1.3 meters	Clarity is directly related to algae growth. Average clarity decreased but still met the standard.

Water quality trends shown on back of page.

Lake & watershed characteristics

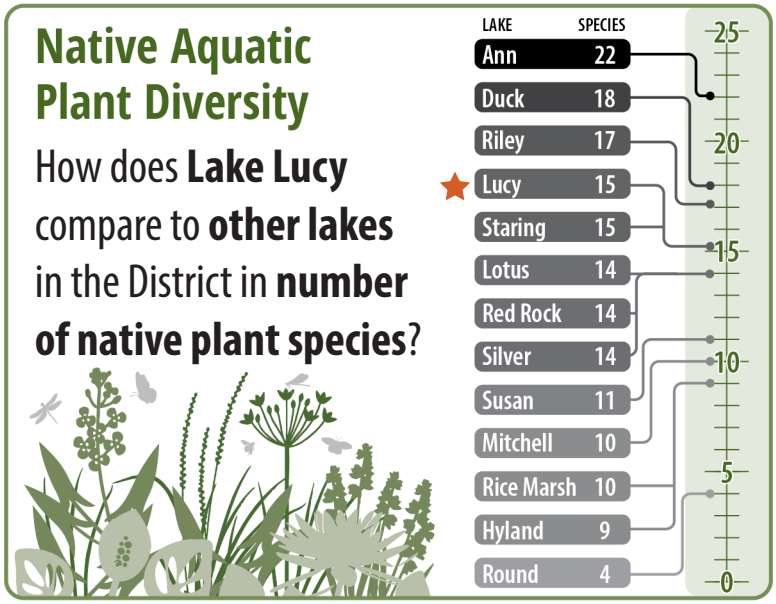
Lake size	88 acres
Average lake depth	6.5 feet
Maximum lake depth	20 feet
MPCA lake classification	Shallow lake
Watershed size	988 acres
Impervious surface	14% of watershed
Impaired Waters listing	Mercury
Common fish	Bluegill, Northern Pike, Yellow Bullhead, Black Crappie, Pumpkinseed Sunfish
Invasive species	Curly-leaf Pondweed, Eurasian Watermilfoil, Common Carp

Watershed Boundary



Native Aquatic Plant Diversity

How does **Lake Lucy** compare to **other lakes** in the District in **number of native plant species**?



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Lake Lucy Water Quality by the Numbers

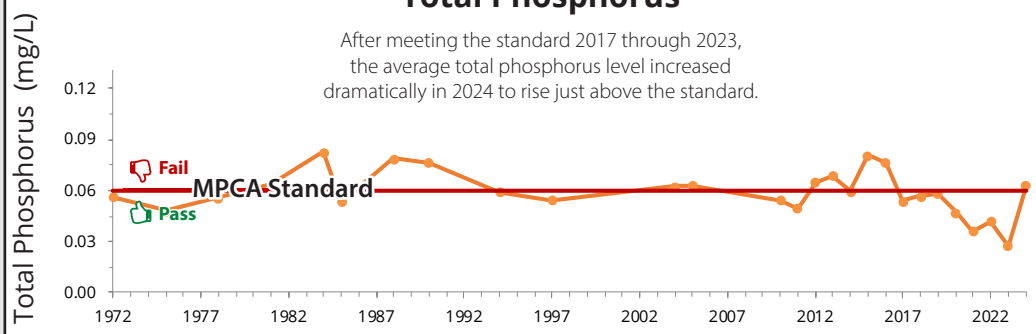
Over the last few years, **Lake Lucy** has met the clean water standards set by the MPCA. The graphs below show water quality trends over time with the red line representing the MPCA standard for **shallow lakes**.

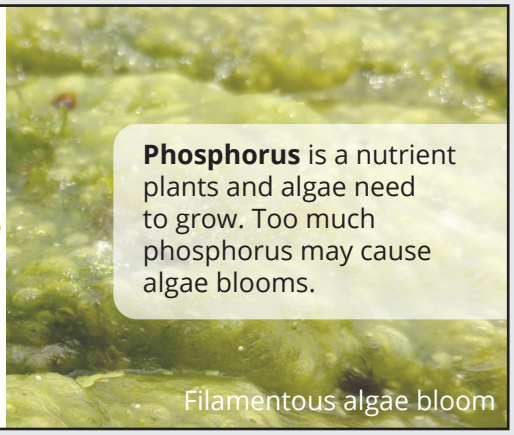
2024 **Water Quality Report Card** rpbcwd.org/grades **C**

Trends Over Time: 1972-present

Total Phosphorus

After meeting the standard 2017 through 2023, the average total phosphorus level increased dramatically in 2024 to rise just above the standard.



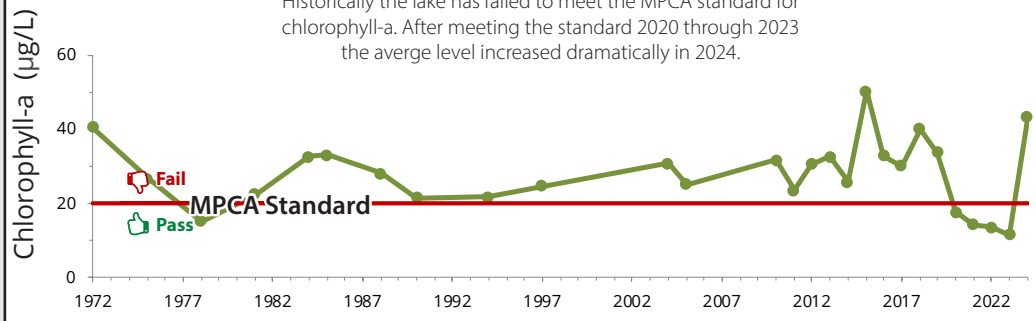


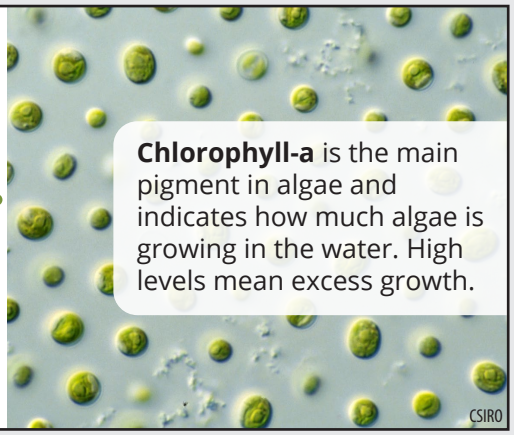
Phosphorus is a nutrient plants and algae need to grow. Too much phosphorus may cause algae blooms.

Filamentous algae bloom

Chlorophyll-a

Historically the lake has failed to meet the MPCA standard for chlorophyll-a. After meeting the standard 2020 through 2023 the averge level increased dramatically in 2024.



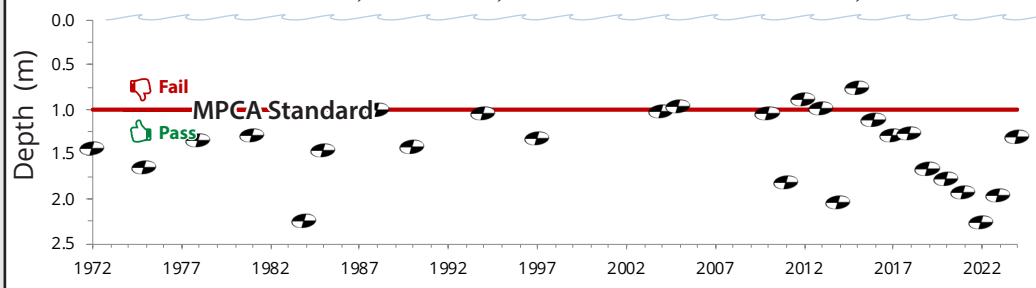


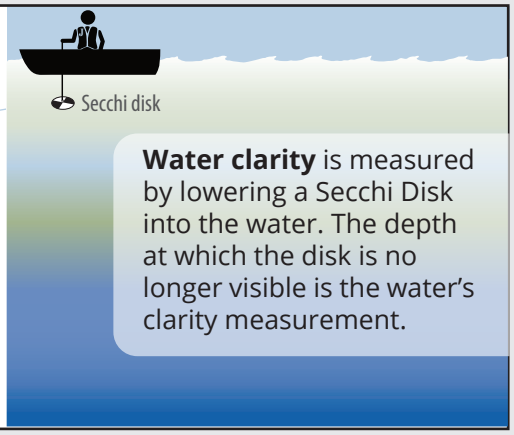
Chlorophyll-a is the main pigment in algae and indicates how much algae is growing in the water. High levels mean excess growth.

CSIRO

Water Clarity

The lake's water clarity has consistently met the MPCA standard for the last nine years.

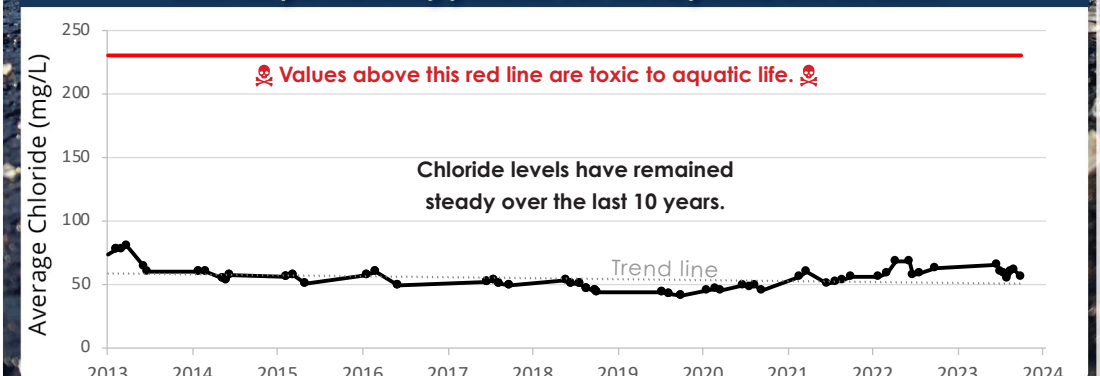




Water clarity is measured by lowering a Secchi Disk into the water. The depth at which the disk is no longer visible is the water's clarity measurement.

Chloride: A Growing Concern

Chloride permanently pollutes our lakes, ponds, and streams!

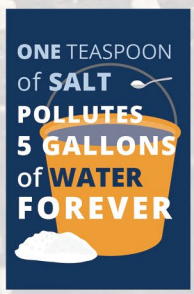


What can I use instead of winter de-icers?

All affordable & effective residential de-icing products contain chloride, even those labeled as "eco-friendly" or "pet safe."

Focus instead on reducing build up of ice on your property:

- **Shovel early & often**
- **Prevent ice formation, avoid driving or walking on snow**
- **Pile snow where it won't melt & refreeze on walkways**



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